

1.1 Purpose and Scope

The Department of Energy (DOE) Office of Oversight, within the Office of Environment, Safety and Health, conducted the second phase of its investigation of the Paducah Gaseous Diffusion Plant (PGDP or Plant) from October through December 1999. The purposes of the second phase of the investigation, and the subject of this report, were to determine whether environment, safety, and health (ES&H) activities and practices from 1952 to 1990 were consistent with the knowledge, standards, and local requirements applicable at the time and to identify any ES&H concerns that had not previously been documented. The first phase of this investigation, conducted from August through October 1999, addressed DOE and site contractor activities and ES&H issues arising since 1990.

This investigation was performed at the direction of the Secretary of Energy, who instructed the Office of Environment, Safety and Health to examine recent employee concerns about past operations and work practices, and current management of legacy materials (i.e., materials remaining from past operations) at PGDP. Both phases of this investigation were coordinated with other organizations that have regulatory authority at PGDP, including the Commonwealth of Kentucky, the Nuclear Regulatory Commission (NRC), the Environmental Protection Agency (EPA), and the Occupational Safety and Health Administration (OSHA). Excluded from this investigation were any activities currently under NRC jurisdiction (i.e., portions of PGDP leased to the United States Enrichment Corporation, or USEC).

The scope of this second phase includes activities from 1952 to 1990 that affect: (1) DOE- and predecessor agency-owned facilities and properties inside and outside of the security fence, (2) privately- or publicly-owned, non-DOE facilities and properties, (3) DOE and contractor personnel employed at PGDP, and (4) members of the public and the environment in proximity to the Plant. The objectives of this phase of the

investigation are to more fully understand the nature of past operations at the Plant, as well as modifications of operations, processes, and activities; and to identify critical ES&H practices and events that did not, in the judgment of the investigation team, fulfill their mission of protecting workers, the public, or the environment. This phase of the investigation is not intended to be a comprehensive examination of the validity of each ES&H concern or allegation previously expressed or identified and is not intended to conflict or interfere with any ongoing litigation involving ES&H concerns at PGDP. The results of other related evaluations being conducted by DOE—such as the mass balance, exposure assessment, and medical surveillance projects—are also outside the scope of this investigation. Finally, detailed examination of any work that PGDP might have performed for others in relation to weapons systems, as well as the effectiveness of any associated ES&H practices, was not part of the investigation.

1.2 Current Site Operations

The PGDP is located in McCracken County, Kentucky, approximately ten miles west of the City of Paducah and three miles south of the Ohio River. The site occupies about 3,425 acres, 750 of which are within a security fence, and contains uranium enrichment process equipment and support facilities. The mission of the Plant is to “enrich” uranium for use in domestic and foreign commercial power reactors. Enrichment involves increasing the percentage of uranium-235 in the material used for creating reactor fuel (UF_6). Uranium-235 is highly fissionable, unlike the more common isotope uranium-238. The PGDP enriches the UF_6 from roughly 0.7 percent uranium-235 to about 2.75 percent uranium-235. Figures 1 and 2 are site maps showing current operations, facility leasing status, and major boundaries.

DOE is the site “landlord,” owns the physical plant, and is responsible for operation of the Northwest plume and the Northeast plume pump and treat systems; for operation of a permitted